

REMARKS

This application has been reviewed in light of the Office Action dated April 6, 2005. In response, the Abstract has been amended to overcome a formal objection thereto, and Claims 3, 4, and 23 have been amended to overcome a formal rejection thereof. To even further clarify the claimed subject matter, Claims 1, 36, 48, 88, and 89 have been amended to overcome a substantive rejection. More specifically, the first-switch paragraph of Claim 1 has been amended, the splitting paragraph in Claims 48 and 88 have been amended, the providing paragraph in Claim 89 has been amended, and an additional link has been recited in Claim 36 to overcome the substantive rejection. In addition, Claims 1-12, 14-45, 47-70, and 72-89 have been amended for reasons unrelated to patentability to improve their form. Claims 1-89 are pending. Claims 1, 11, 27, 36, 48, 55, 65, 69, 84, 88, and 89 are independent. Favorable reconsideration is requested.

Specification Objection

The Abstract is objected to because it exceeds 150 words.¹ In response, while not conceding the propriety of the objection, the Abstract has been amended so that it does not exceed 150 words. Therefore, Applicant respectfully requests that the Abstract objection now be withdrawn.

^{1/}At the time the application was filed, the Patent Office had not yet set a 150 word limit on the length of the Abstract.

Formal Claim Rejection

Claims 3-5, 8, 9, and 23-29 are rejected under 35 U.S.C. § 112, second paragraph, for minor informalities in Claims 3, 4, and 23. In response, while not conceding the propriety of the rejection, Claims 3, 4, and 23 have been amended to address the points raised by the Office Action. Applicant submits that as amended, these claims now even more clearly satisfy 35 U.S.C. § 112, second paragraph.

Allowable Subject Matter

Applicant gratefully acknowledges the allowance of Claims 27-35 and 84-87.

Substantive Rejection

Claims 1-26, 36-83, 88, and 89 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,081,359 (*Takehana et al.*) in view of U.S. Patent No. 5,949,563 (*Takada*).

While not conceding the propriety of the rejection, independent Claims 1, 36, 48, 88, and 89 have been amended. Applicant submits that as amended, these claims, and independent Claims 11, 55, 65, and 69, are allowable for the following reasons.

A. Independent Claim 1

Independent Claim 1 recites, in part, a first switch that can couple a second output of at least one splitter to at least one second link through which a line node is coupled to a second terminal when a failure in at least one first communication path is detected by detector. Claim 1

has been amended to recite that the second output of the at least one splitter is connected directly to the first switch. Support for this feature is found at least in Figures 2A and 6.

In contrast, the patent to *Takehana, et al.* is understood to use a beam splitter 50 that is connected to an optical switch 7 through another beam splitter 51. The beam splitter 50 is not understood to be directly connected to the optical switch 7. As a result, this patent is not understood to disclose or suggest that the second output of at least one splitter is connected directly to a first switch, as recited by amended Claim 1. In addition, the patent to *Takada* is understood to merely disclose, for example in Figure 4, switching units 81 and 82 switching over low-order group signals Trib. 1 to Trib. 3 and Trib. 4 to Trib. 6 to multiplexer demultiplexers 11 and 12 in a current system or a multiplexer demultiplexer 40 in an auxiliary system. As a result, this patent is also not understood to disclose or suggest that the second output of at least one splitter is connected directly to a first switch, as recited by amended Claim 1.

Thus, these patents are not understood to disclose or suggest at least one feature of amended Claim 1. And since MPEP § 2142 requires the cited art to disclose or suggest all the claimed features to establish a prima facie case of obviousness, the Patent Office is not understood to have established a prima facie case of obviousness against Claim 1 over this art. Accordingly, Applicant respectfully requests that the rejection of Claim 1 be withdrawn.

MPEP § 2142 also requires that there “be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings”. But, neither the *Takehana, et al.* patent, nor the *Takada* patent is understood to disclose or suggest that the second output of the splitter 50 of the *Takehana, et al.* patent is connected directly to the switch 7, as required by

amended Claim 1. Thus, the Office Action is not understood to have established the factual basis for the motivation to modify the *Takehana, et al.* patent to produce the invention of amended Claim 1. For this additional reason, the Patent Office is not understood to have established a prima facie case of obviousness against amended Claim 1 over this art. Accordingly, Applicant respectfully requests that the rejection of amended Claim 1 be withdrawn for this additional reason.

MPEP § 2142 further requires that there be a reasonable expectation of success when modifying the art to produce the claimed invention. But, here, in the *Takehana, et al.* patent, eliminating the splitter 51 so that the splitter 50 can be directly connected to the switch 7 would prevent transponder unit supervising unit 3 from receiving signals that enter the transponders 2-1 through 2-n. As a result, the transmitting auxiliary system controller 4 could not compare the signals inputted into and outputted from the transponders 2-1 through 2-n, preventing the system from determining when a failure occurs that would require the use of the auxiliary system. Thus, the Patent Office is not understood to have established a reasonable expectation of success in modifying the *Takehana, et al.* patent to produce the invention of amended Claim 1, as required by MPEP § 2142. For this third reason, the Patent Office is not understood to have established a prima facie case of obviousness against amended Claim 1 over this art. Accordingly, Applicant respectfully requests that the rejection of Claim 1 be withdrawn for this additional reason.

B. Independent Claims 11, 36, 55, 65, 69, and 89

Independent Claim 11 relates to a line node for a communication network. The line node is coupled to each of a plurality of first terminals through both a first link and a second link. The

line node also is coupled to at least one second terminal through at least one third link. The line node comprises a plurality of communication paths, a switch, a detector, and a controller.

The plurality of communication paths are for routing signals being communicated between the first terminals and the at least one second terminal. Each communication path has a first end coupled to a respective one of the first links and a second end coupled to the at least one third link.

The switch has a plurality of first terminals and a second terminal. Each of the first terminals of the switch are coupled to a respective one of the second links. The second terminal of the switch is coupled to the at least one third link.

The detector is for detecting a failure in at least one of the communication paths.

The controller is coupled to the detector and to the switch, and is responsive to the detector detecting a failure in a communication path for controlling the switch to couple a corresponding one of the second links to the at least one third link, for providing an alternate route through those links for routing the signals.

By this arrangement, a communication failure can be compensated for because each first terminal is coupled to the line node by first and second links. During normal communication, a signal can be transmitted from a first terminal to the second terminal through the line node by using the first link. When the detector detects a communication failure, a signal is transmitted from a first terminal to the second terminal through the line node by using the second link and the switch.

In contrast, neither the *Takehana et al.* patent, nor the *Takada* patent is understood to relate to such a dual-terminal-link system. Rather, these patents are understood to relate to beam-

splitter systems that protect against a line failure by splitting a beam so that it enters an auxiliary or stand-by system. As a result, they are not understood to protect against a communication failure by providing a line node coupled to each of a plurality of first terminals through both a first link and a second link, as recited by Claim 11. Therefore, these patents are also not understood to disclose or suggest a switch having a plurality of first terminals, each of which is coupled to a respective one of the second links, as also recited by Claim 11. And consequently, these patents also are not understood to disclose or suggest a controller coupled to such a switch, and responsive to detector detecting a failure in a communication path for controlling the switch to couple a corresponding one of the second links to at least one third link, for providing an alternate route through those links for routing the signals, as also recited by Claim 11.

Instead, Figure 4 of the *Takehana et al.* patent is understood to show terminals 1-1 through 1-4 that are connected by a *single* signal line to the transmitting and receiving apparatus. A signal is understood to be sent to the auxiliary system in the event of a communication failure via beam splitters 50 and 51. The use of first and second links coupling terminals 1-1 through 1-4 to a line node is not understood to be shown or suggested.

The *Takeda* patent is understood to emphasize the processing of signals between two terminals. As a result, this patent is not understood to show or discuss the terminals at all. Thus, this patent is not understood to disclose how many links connect the terminals to the transmitting system. For example, Figures 2-4 of this patent are understood to merely show signals Trib. 1-3 and Trib. 4-6, presumably transmitted from some unillustrated terminals, entering switches 81 and 82 (or directly entering multiplexer demultiplexers 1 or 2). The switches 81 and 82 appear to split the signals so that they can enter both the working system and the standby system.

Thus, these patents are not understood to disclose or suggest the dual terminal links, the switch, or the controller recited by Claim 11. Since MPEP § 2142 requires the cited art to disclose or suggest all the claimed features to establish a prima facie case of obviousness, the Patent Office is not understood to have established a prima facie case of obviousness against Claim 11 over this art. Accordingly, Applicant respectfully requests that the rejection of Claim 11 be withdrawn for this reason.

In addition, Claim 11 is understood to be allowable over the *Takehana et al.* and *Takada* patents for two additional reasons.

First, the Office Action is not understood to have established the factual basis for the motivation to modify the *Takehana, et al.* patent to produce the invention of Claim 11, as required by MPEP § 2142. To modify the *Takehana et al.* device to produce the invention of Claim 11, first and second links are required to link the terminals 1-1 through 1-4 to the transmission system. But, there is no need to couple the terminals 1-1 through 1-4 to the transmission system through both a first link and a second link, because the *Takehana et al.* patent achieves redundancy through the use of two beam splitters 50 and 51, which route a signal to a switch 7 in the event of failure of one of the transponders 2-1 through 2-n. In addition, neither the *Takehana et al.* patent, nor the *Takeda* patent is understood to suggest the coupling of terminals 1-1 through 1-4 to the transmission system through two links, as required by Claim 11. Thus, the Office Action has not satisfied its burden of proof to establish the factual basis for the motivation to modify the *Takehana, et al.* patent to produce the invention of Claim 11, as required by MPEP § 2142. For this additional reason, the Patent Office is not understood to have established a prima facie case of obviousness against Claim 11 over this art. Accordingly,

Applicant respectfully requests that the rejection of Claim 11 be withdrawn for this additional reason.

Second, if the two links recited by Claim 11 replace the beam splitters 50 and 51 in the *Takehana et al.* patent to provide the needed redundancy, it is not understood how the *Takehana et al.* transmission device could protect against a communication failure, since eliminating the splitter 51 would prevent transponder unit supervising unit 3 from receiving signals that enter the transponders 2-1 through 2-n, thereby preventing the transmitting auxiliary system controller 4 from comparing the signals inputted into and outputted from the transponders 2-1 through 2-n, and preventing the system from determining when a failure occurs that would require the use of the auxiliary system. Thus, the Patent Office is not understood to have established a reasonable expectation of success in modifying the *Takehana, et al.* patent to produce the invention of amended Claim 11, as also required by MPEP § 2142. For this additional reason, the Patent Office is not understood to have established a prima facie case of obviousness against Claim 11 over this art. Accordingly, Applicant respectfully requests that the rejection of Claim 11 be withdrawn for this additional reason.

Independent Claim 36, 55, 65, 69, and 89 also relate to a dual-terminal-link apparatus or method employing two links between at least one line node and a first terminal.² Therefore, these claims are allowable for reasons similar to those given above for the allowability of Claim

²Claim 36 has been amended to recite the use of an additional link to couple at least one first node to at least one first terminal. Support for this amendment is found at least in Figures 3 and 6. Claim 89, which originally recited the use of first and second communication links, has been amended to explicitly recite that the at least one node is coupled to each of the first communication terminals through a corresponding second one of the communication links. Support for this amendment is also found at least in Figures 3 and 6.

11. Accordingly, Applicant respectfully requests that the rejection of independent Claim 36, 55, 65, 69, and 89 be withdrawn.

In addition, independent Claims 55 and 65 recite an additional feature not understood to be disclosed or suggested by the *Takehana et al.* and *Takada* patents. These claims recite that each first terminal has first and second interfaces. More specifically, Claims 55 and 65 recite that each communication path of at least one line node is coupled at a first end thereof through a first link to the first interface of a first terminal, and that the line node is also coupled to the second interface of each first terminal through at least one third link. Neither the *Takehana et al.* patent, nor the *Takada* patent is understood to disclose or suggest such a dual terminal-interface structure. Since MPEP § 2142 requires the cited art to disclose or suggest all the claimed features to establish a *prima facie* case of obviousness, for this additional reason the Patent Office is not understood to have established a *prima facie* case of obviousness against Claims 55 and 65 over this art. Accordingly, Applicant respectfully requests that the rejection of Claims 55 and 65 be withdrawn for this additional reason.

C. Claims 48 and 88

Amended Claim 48 recites, in part, splitting received signals from a first terminal into corresponding signal portions and forwarding a first one of the signal portions through at least one first communication path towards a second terminal and forwarding a second one of the signal portions through an alternative communication path to a switch without splitting the second one of the signal portions, the switch being capable of connecting the first and second terminals. Support for the amendments to Claim 48 is found at least in Figures 2A and 6.

In contrast, the signal inputted into the switch 7 of the auxiliary system of the *Takehana, et al.* patent is understood to be split twice, by beam splitters 50 and 51, so that the transmitting auxiliary controller 4 can monitor a failure in the communication paths. As a result, this patent is not understood to disclose or suggest splitting received signals from a first terminal into corresponding signal portions and forwarding a first one of the signal portions through at least one first communication path towards a second terminal and forwarding a second one of the signal portions through an alternative communication path to a switch *without splitting the second one of the signal portions*, the switch being capable of connecting the first and second terminals, as recited by amended Claim 48. In addition, the patent to *Takada* is also not understood to disclose or suggest this feature.

Therefore, the Office Action is not understood to have satisfied the three requirements for establishing a prima facie case of obviousness against amended Claim 48 under MPEP § 2142. More specifically, the Office Action is not understood to have satisfied the all-limitations criteria of MPEP § 2142, since these patents are not understood to disclose or suggest all the features of amended Claim 48. The Office Action is also not understood to have satisfied the motivation-to-combine criteria of MPEP § 2142, since the Office Action is not understood to have established that these patents or knowledge generally available to those of ordinary skill in the art would motivate one to transmit the signals in the *Takehana, et al.* patent from the beam splitter 50 to the switch 7 without splitting the signals, as required by amended Claim 48. Finally, the Office Action is not understood to have satisfied the reasonable-expectation-of-success criteria of MPEP § 2142, since eliminating the splitter 51 in the *Takehana, et al.* patent would prevent transponder unit supervising unit 3 from receiving signals that enter the transponders 2-1 through

2-n, thereby preventing the transmitting auxiliary system controller 4 from comparing the signals inputted into and outputted from the transponders 2-n, and preventing the system from determining when a failure occurs that would require the use of the auxiliary system.

For these three reasons, the Patent Office is not understood to have established a prima facie case of obviousness against amended Claim 48 over this art. Accordingly, Applicant respectfully requests that the rejection of Claim 48 be withdrawn. And since Claim 88 has been amended in the same manner as Claim 48, Applicant respectfully requests that the rejection of this claim also be withdrawn for the same reasons as those given for Claim 48.

D. Dependent claims

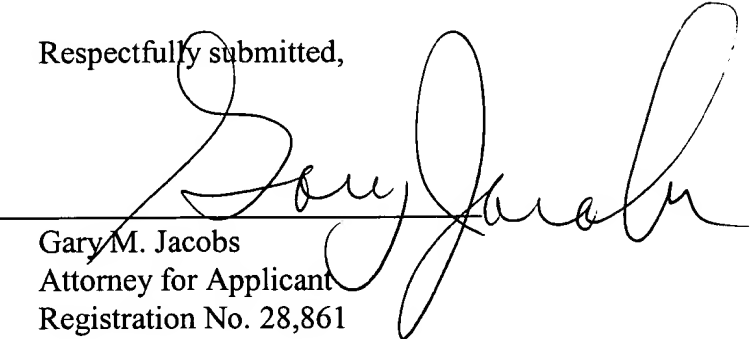
The dependent claims are allowable for the reasons given for the independent claims and because they recite features that are patentable in their own right. Individual consideration of the dependent claims is respectfully solicited.

Conclusion

In view of the above amendments and remarks, the application is now in allowable form. Therefore, early passage to issue is respectfully solicited.

Applicant's undersigned attorney may be reached in our New York office by telephone at
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